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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 849,597	05 07,2001	Han Oh Park	024018.0111	8892

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EXAMINER

CHUNDURU, SURYAPRABHA

ART UNIT	PAPER NUMBER
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1637

DATE MAILED: 11/06/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/849.597

Applicant(s)

PARK ET AL.

Examiner

Suryaprabha Chunduru

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

1. Applicants' response to the office action and amendment (Paper No. 12) filed on July 29, 2002 has been entered.

Response to Arguments

2. Applicant's response to the office action (Paper No.12) is fully considered and deemed persuasive.
3. The rejection made under 35 U.S.C. 112 first and second paragraphs in the previous office action is withdrawn herein in view of the applicants' arguments and amendment (Paper No.12).
4. With respect to the rejection made in the previous office action under 35 U.S.C. 103(a), Applicant's arguments with respect to claim 3 have been considered but are moot in view of the new ground(s) of rejection.

New Grounds of Rejections

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 5 -12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Guilfoye et al. (USPN. 5,994,068) in view of Backman et al. (5,516,663).

Guilfoye et al. teach a method for amplification of DNA fragments of unknown base sequences, wherein Guilfoye et al. teach that the method comprises (i) digesting a DNA into fragments having cohesive ends (see column 2, lines 36-45, column 3, lines 20-24); (ii) preparing oligonucleotide adaptors having single strand cohesive ends (see column 2, lines 13-35, column 8, lines 33-62); (iii) ligating oligonucleotide adaptors to the DNA fragments using T4 ligase (see column 2, lines 46-50, column 15, lines 10-11); (iv) removing or clean up unligated DNA and adaptors (see column 15, line 12); (v) amplifying the DNA fragments using a DNA polymerase and a primer which is complementary to a residual sequence from the adaptors (see column 2, line 51, column 10, lines 25-50, column 15, lines 19-21). Guilfoye et al. also teach that the method comprises adaptors comprising hairpin loops (mismatch base analog(s) substituted) (see column 7, lines 8-30). However, Guilfoye et al. did not teach eliminating hairpin loop structures from ligated DNA fragments by using an alkaline solution or an RNase or a single strand specific exonuclease.

Backman et al. teach a method amplifying a target nucleic acid wherein Backman et al. teach that the method comprises eliminating abasic residue or hairpin loop structure by cleaving the ligated DNA fragments by using RNase or alkali (see column 4, lines 15-35) or endonuclease IV (see column 11, lines 40-67, column 12, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time

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the invention was made to combine the method of selectively amplifying any fragment generated by a class II restriction enzyme, including adapters specific to fragment ends as taught by Guilfoye et al. with the correction of ligated products as taught by Backman et al., which is applicable to eliminate hairpin loop structures because Backman suggests that 'the mechanism for reducing or eliminating contamination in ligase chain reaction using endonuclease IV correction method would alleviate the background caused by target independent ligation and at the same time, provide a mechanism to control contamination' (see column 3, lines 11-20). An ordinary practitioner would have been motivated to combine the method of selective amplification of DNA fragments as taught by Guilfoye et al. with the use of mechanism for controlling contamination as taught by Backman et al. by limiting the ligated DNA fragments free of hairpin loop structures, for the advantages of reducing background noise and contamination during PCR amplification and for the benefit of developing a method of amplification with increased sensitivity and specificity.

Conclusion

No claims are allowable.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 703-305-1004. The examiner can normally be reached on 8.30A.M. - 4.30P.M, Mon - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 703-308-1119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and - for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

^{SR}
Suryaprabha Chunduru
October 29, 2002



JEFFREY FREDMAN
PRIMARY EXAMINER